

Azure Sql

The screenshot shows the Microsoft Azure portal interface. At the top, there's a navigation bar with 'Microsoft Azure' and an 'Upgrade' button. A search bar says 'Search resources, services, and docs (G+/-)'. On the right, there are icons for Copilot, a profile picture, and other account settings.

The main content area shows a virtual machine named 'Uwindows01' under the 'Virtual machine' category. The 'Overview' tab is selected. A warning message at the top states: 'Uwindows01 virtual machine agent status is not ready. Troubleshoot this issue →'. Below this, there are several tabs: 'Overview' (selected), 'Activity log', 'Access control (IAM)', 'Tags', 'Diagnose and solve problems', 'Monitor', 'Resource visualizer', 'Connect', 'Networking', 'Network settings', 'Load balancing', 'Application security groups', and 'Network manager'. Under 'Networking', it shows a public IP address of 20.9.84.104 and a private IP address of 172.16.0.4.

Key details about the VM are listed:

Resource group	(move) : Urg01	Operating system	: Windows (Windows Server 2025 Datacenter Azure Edition)
Status	: Running	Size	: Standard DC1ds v3 (1 vcpu, 8 GiB memory)
Location	: Central US	Primary NIC public IP	: 20.9.84.104 1 associated public IPs
Subscription	(move) : Azure subscription 1	Virtual network/subnet	: vnet-centralus/snet-centralus-1
Subscription ID	: 5d75b66d-66bf-44e0-8d7e-7e61e4b043d7	DNS name	: Not configured
		Health state	: -
		Time created	: 10/02/2026, 11:01 UTC

Tags section: Tags (edit) : Add tags

Properties tab: Virtual machine, Networking

Networking section:

Public IP address	(IPv4) 20.9.84.104 (Network interface uwindows01327) 1 associated public IPs
Public IP address (IPv6)	-
Private IP address	172.16.0.4

Create SQL Database

Microsoft

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * ⓘ

Azure subscription 1

Resource group * ⓘ

(New) Usq1-rg

[Create new](#)

Database details

Enter required settings for this database, including picking a logical server and configuring the compute and storage resources

Database name *

Ucentralusdb

Server * ⓘ

(new) usqlcentralus (Central US)

[Create new](#)

Want to use SQL elastic pool? ⓘ

Yes No

Workload environment

Development

Production

 Default settings provided for Development workloads. Configurations can be modified as needed.

Compute + storage * ⓘ

Basic

2 GB storage

[Configure database](#)

Backup storage redundancy

Choose how your PITR and LTR backups are replicated. Geo restore or ability to recover from regional outage is only available when geo-redundant storage is selected.

Backup storage redundancy ⓘ

Locally-redundant backup storage

Zone-redundant backup storage

Geo-redundant backup storage

Geo-Zone-redundant backup storage

[Review + create](#)

[Next : Networking >](#)

Create SQL Database

Microsoft

Basics Networking Security Additional settings Tags Review + create

Configure network access and connectivity for your server. The configuration selected below will apply to the selected server 'usqlcentralus' and all databases it manages. [Learn more ↗](#)

Network connectivity

Choose an option for configuring connectivity to your server via public endpoint or private endpoint. Choosing no access creates with defaults and you can configure connection method after server creation. [Learn more ↗](#)

Connectivity method * ⓘ

- No access
- Public endpoint
- Private endpoint

Firewall rules

Setting 'Allow Azure services and resources to access this server' to Yes allows communications from all resources inside the Azure boundary, that may or may not be part of your subscription. [Learn more ↗](#)
Setting 'Add current client IP address' to Yes will add an entry for your client IP address to the server firewall.

Allow Azure services and resources to access this server *

No Yes

Add current client IP address *

No Yes

Connection policy

[Review + create](#)

< Previous

Next : Security >

Create SQL Database

Microsoft

Basics Networking Security Additional settings Tags Review + create

Customize additional configuration parameters including collation & sample data.

Data source

Start with a blank database, restore from a backup or select sample data to populate your new database.

Use existing data *

None Backup Sample

AdventureWorksLT will be created as the sample database.

Database collation

Database collation defines the rules that sort and compare data, and cannot be changed after database creation. The default database collation is SQL_Latin1_General_CI_AS. [Learn more ↗](#)

Collation ⓘ

SQL_Latin1_General_CI_AS

[Review + create](#)

< Previous

Next : Tags >

Create SQL Database

Microsoft

Basics

Subscription	Azure subscription 1
Resource group	Usql-rg
Region	Central US
Database name	Ucentralusdb
Server	(new) usqlcentralus
Authentication method	SQL authentication
Server admin login	azureuser
Compute + storage	Basic: 2 GB storage
Backup storage redundancy	Locally-redundant backup storage

Networking

Allow Azure services and resources to access this server	Yes
Add current client IP address 49.206.40.158	Yes
Private endpoint	None
Minimum TLS version	1.2
Connection Policy	Default

Security

Identity	Not enabled
Transparent data encryption (Server level)	Service-managed key selected
Database level customer-managed key	Not configured
Database level user assigned managed identity	Not configured
Advanced data security	Not now
Always Encrypted with secure enclaves	Not configured
Sql Ledger(Database)	Disabled
Digest Storage	Disabled

Additional settings

Use existing data	Sample
Collation	SQL_Latin1_General_CI_AS

Tags

[Create](#)[< Previous](#)[Download a template for automation](#)

Ucentralusdb (usqlcentralus/Ucentralusdb)

SQL database

Copy Restore Export Set server firewall Delete Connect with... Feedback

Join us at **SQLCON Atlanta** from March 16-20 2026, for the ultimate SQL community learning event. Save \$200 with SQLAZP200.

Overview

Activity log Tags Diagnose and solve problems Query editor (preview) Mirror database in Fabric (preview) Resource visualizer

Resource group (move) : [Usqlrg](#) Status : Online Location : Central US Subscription (move) : [Azure subscription 1](#) Subscription ID : 5d75b66d-66bf-44e0-8d7e-7e61e4b043d7

Server name : [usqlcentralus.database.windows.net](#) Elastic pool : [No elastic pool](#) Connection strings : [Show database connection strings](#) Pricing tier : Basic Earliest restore point : No restore point available

Tags (edit) : Add tags

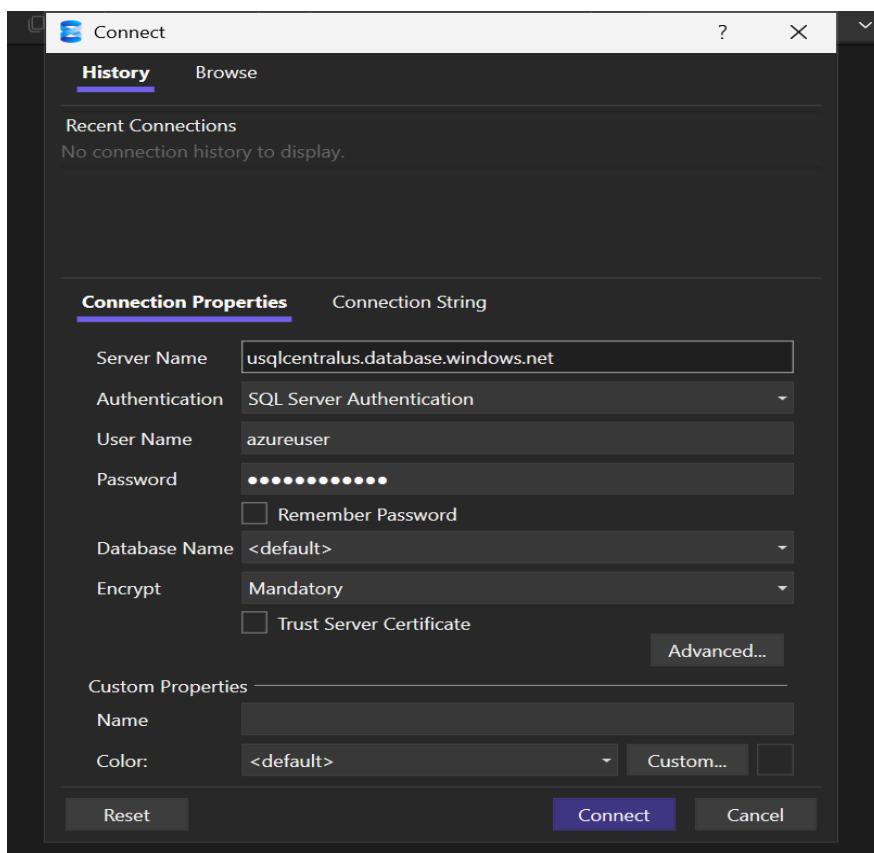
Getting started Monitoring Properties Features Notifications (0) Integrations Tutorials

Start working with your database

Connect to your database and start working with data with a few simple steps. [Learn more](#)

Configure access Connect to application Start developing Mirror data

- ✓ I have created database on **Azure SQL** which is **PaaS model**
- ✓ Above created was **sample database** by giving **Public Access**
- ✓ **Next copy Server name above and paste on windows machine on cloud in Sql Server, shown in below and connect to DB.**



The screenshot shows the SSMS interface. On the left, the Object Explorer displays a database named 'usqlcentralus.database.windows.net (SC)' containing various objects like System Databases, Tables, and Views. In the center, a query window titled 'SQLQuery1.s...euser (66)*' contains the following SQL code:

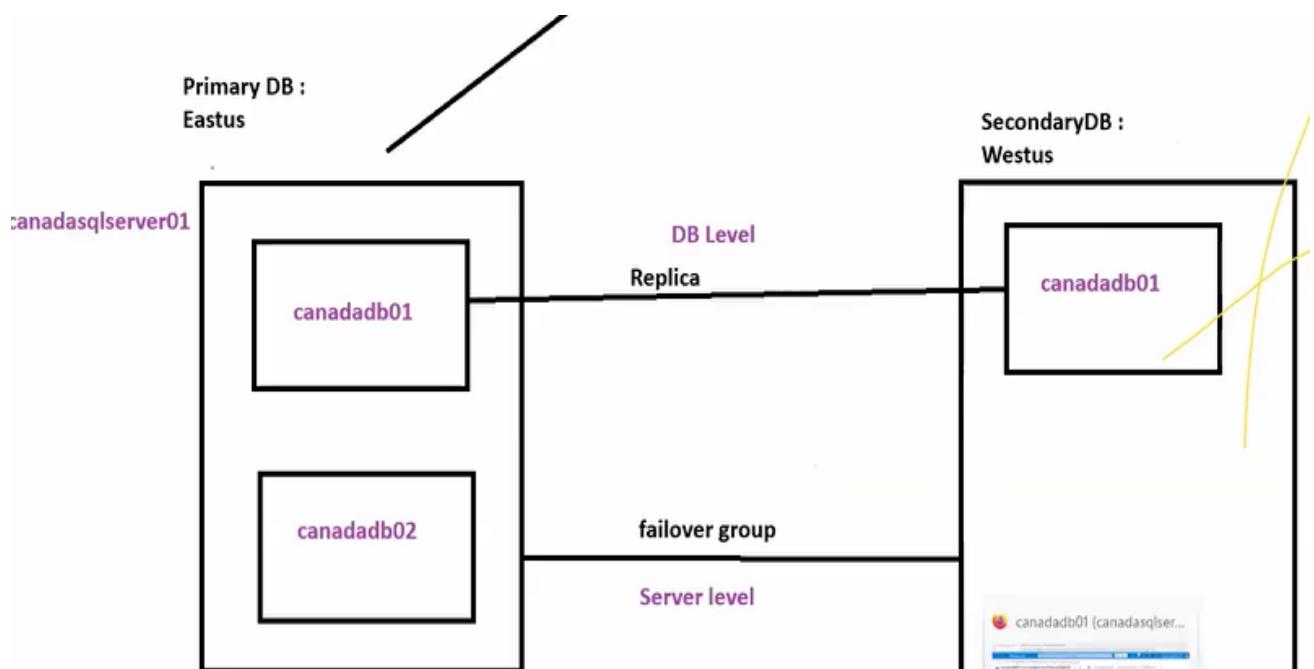
```

1  #centralus
2
3  select * from [SalesLT].[Customer]
4

```

The results grid below shows 847 rows of data from the 'Customer' table. The columns include CustomerID, NameStyle, Title, FirstName, MiddleName, LastName, Suffix, CompanyName, and SalesPerson. The data includes entries for Orlando, Keith, Donna, Janet, Lucy, Rosmarie, Dominic, and Kathleen.

- ✓ So, by using this, SQL developer do altering & modifications and all.
- ✓ This database every user can Access.
- ✓ Now let's do replica, to create same database in another region, why bcz if anything goes wrong, we cloud able to access from different region.



✓ To create replica, we should be on database level

Home > Microsoft.SQLDatabase.newDatabaseNewServer_5f58e1768d4a4006b065c | Overview > Ucentralusdb (usqlcentralus/Ucentralusdb)

Ucentralusdb (usqlcentralus/Ucentralusdb) | Replicas

SQL database

Search + Create replica Refresh Feedback

Overview Activity log Tags Diagnose and solve problems Query editor (preview) Mirror database in Fabric (preview) Resource visualizer Settings Data management Replicas Sync to other databases

No replicas found

✓ Click on create server and create Italy server on Italy region.

Create SQL Database Server

Microsoft

Server name *

.database.windows.net

Location *

Allow Azure services to access server [\(i\)](#)

Authentication

Azure Active Directory (Azure AD) is now Microsoft Entra ID. [Learn more](#) ↗

Select your preferred authentication methods for accessing this server. We recommend using only Microsoft Entra authentication [Learn more](#) ↗ using an existing Microsoft Entra user, group, or application as Microsoft Entra admin [Learn more](#) ↗

Authentication method

- Use Microsoft Entra-only authentication
- Use both SQL and Microsoft Entra authentication
- Use SQL authentication

Server admin login *

Enter server admin login

Password *

OK

Create SQL Database - Geo Replica

Microsoft

Subscription

Azure subscription 1

...

Resource group

Usql-rg

Primary database details

Additional settings will be defaulted where possible based on the primary database.

Primary database

Ucentralusdb

Region

centralus

Geo-secondary database details

Project details

Select the subscription of geo secondary database to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription *

Azure subscription 1

Resource group *

Usql-rg

[Create new](#)

Database details

Enter required settings for this database, including picking a logical server and configuring the compute and storage resources

Database name

Ucentralusdb

Server *

(new) italyserver01 (Italy North)

[Create new](#)

Region

Italy North

Want to use SQL elastic pool?

Yes No

Compute + storage *

Basic

2 GB storage

[Configure database](#)

Transparent data encryption key management

Transparent data encryption encrypts your databases, backups, and logs at rest without any changes to your application.

[Review + create](#)

[Next: Network](#)

Create SQL Database - Geo Replica

Microsoft

Basics **Networking** Additional settings Review + create

Configure networking access for your server.

Firewall rules

Allow Azure services and resources to access this server 

Yes

No

Create SQL Database - Geo Replica

Microsoft

Basics

Subscription	Azure subscription 1
Resource group	Usql-rg
Primary database	Ucentralusdb
Region	Italy North
Database name	Ucentralusdb
Server	(new) italyserver01
Authentication method	SQL authentication
Server admin login	azureuser
Compute + storage	Basic: 2 GB storage
Database level customer-managed key	Not configured
Database level user assigned managed identity	Not configured
Backup storage redundancy	Locally-redundant backup storage

Networking

Allow Azure services to access server Yes

Additional settings

Enable Microsoft Defender for SQL Not now

[Create](#)

[< Previous](#)

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✓ Below created Italy server.

The screenshot shows the Azure portal interface for a SQL database named 'Ucentralusdb'. The left sidebar contains navigation links like Overview, Activity log, Tags, Diagnose and solve problems, Query editor (preview), Mirror database in Fabric (preview), Resource visualizer, Settings, Data management (Replicas, Sync to other databases), Integrations, and Power Platform. The main content area displays the database's configuration under the 'Essentials' section. Key details include:

- Resource group: Usql-rg
- Status: Online
- Location: Italy North
- Subscription: Azure subscription 1
- Subscription ID: 5d75b66d-66bf-44e0-8d7e-7e61e4b043d7
- Server name: italyserver01.database.windows.net
- Elastic pool: No elastic pool
- Connection strings: Show database connection strings
- Pricing tier: Basic
- Earliest restore point: No restore point available
- Replica type: Geo
- Primary database: Ucentralusdb

Below the configuration, there are sections for Tags (edit) and Getting started. A banner at the top right encourages attending SQLCON Atlanta from March 16-20 2026. A 'Start working with your database' button is prominently displayed at the bottom.

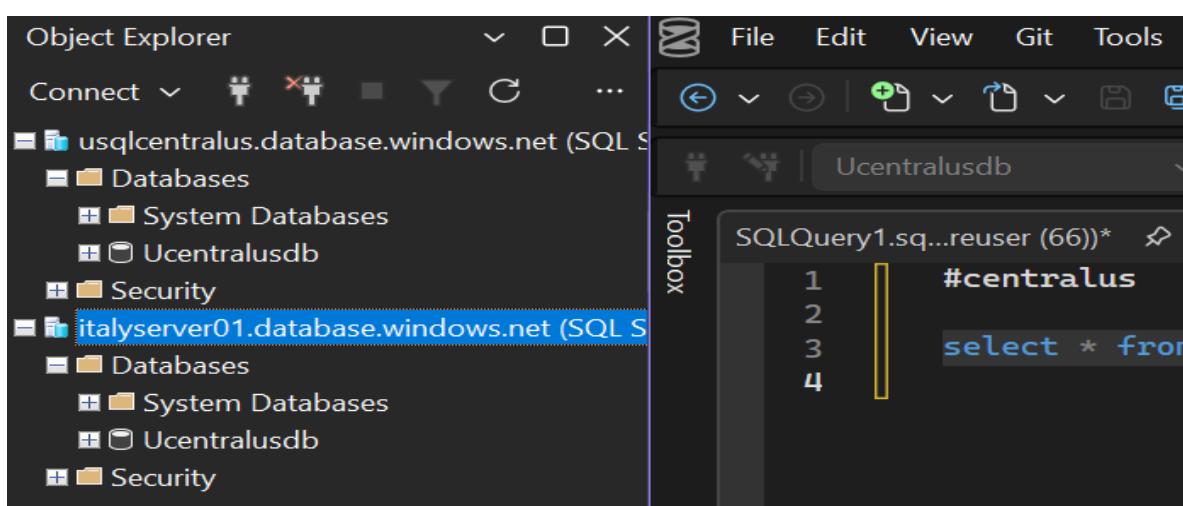
✓ Now let's connect to DB by using Italyserver name above.

The screenshot shows the 'Connect' dialog box. At the top, there are tabs for History (selected) and Browse. Below them is a list of recent connections, with 'usqlcentralus.database.windows.net, <default> (azureuser)' highlighted. The main area is titled 'Connection Properties' and contains the following fields:

Server Name	italyserver01.database.windows.net
Authentication	SQL Server Authentication
User Name	azureuser
Password	[REDACTED]
Database Name	<default>
Encrypt	Mandatory

Below these properties are sections for 'Custom Properties' (Name and Color dropdown) and buttons for 'Reset', 'Connect', and 'Cancel'.

- ✓ Below we can see same database in two different Regions and we connected both
 - First- (central us)-Primary
 - Second-(Italy)-Secondary



Important:

- ✓ Whatever changes we do in **primary data** it will sink to **secondary data** within milli-sec.
- ✓ Data will always be replicating from primary to secondary only
- ✓ Primary (Read, Write, Delete) permissions
- ✓ Secondary (Only Read) permissions, we can't do changes here.
 - If due to any problem primary data down then secondary data will be primary.

The screenshot shows the Azure portal page for the database "Ucentralusdb". The left sidebar has a "Replicas" section selected. The main content area displays the following information:

Ucentralusdb (usqlcentralus/Ucentralusdb) | Replicas

Geo replicas for your database are listed below. Geo replicas reside on a different logical server from the primary and protect against regional failures or prolonged data center outage. [Learn more](#)

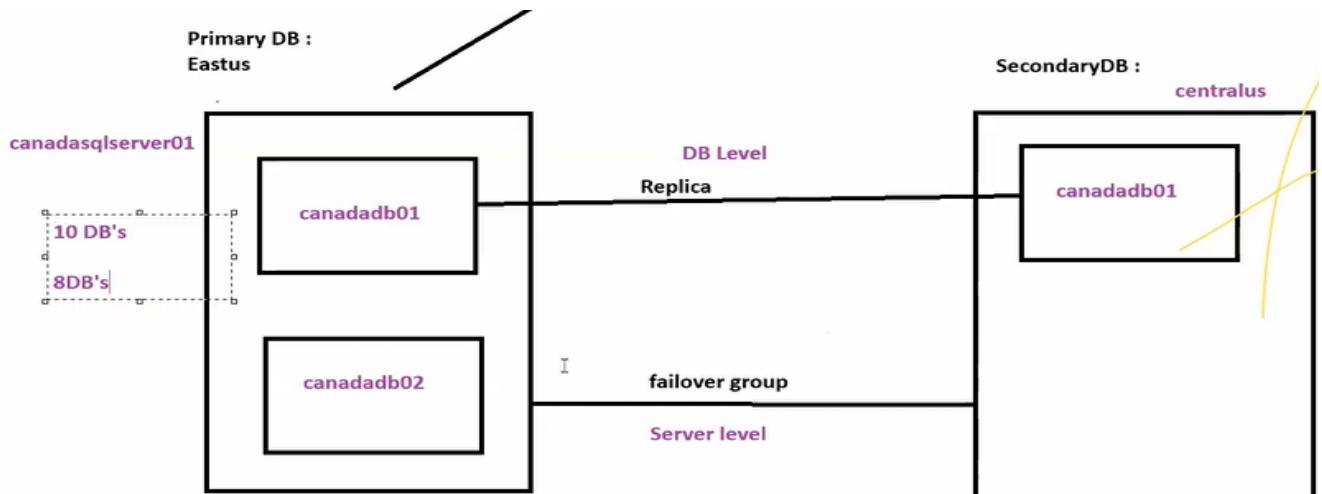
Name ↑	Server ↑	Region ↑	Failover policy ↑	Pricing tier ↑	Replica state ↑
Ucentralusdb	usqlcentralus	Central US	None	Basic	Online
Ucentralusdb	italyserver01	Italy North		Basic	

On the far right, there is a context menu with the following options:

- Pin to dashboard
- Failover
- Forced failover
- Stop replication

- ✓ Above let's do force failover on Primary database then on secondary database we can do changes (Read,Write,Delete).
- Above we have done Replica and Failover on database to database only.
- **Example:** On one Physical server there will be multiple databases, so we can select databases by choosing and replicate to another server.

- **DB Level & Server Level**



Failover group for Lab:

- ✓ Create 2databases on Sqlserver in Southindia,
- ✓ Select southindia Sqlserver and go to Data Management → Failover group → Add Group → Choose any region and replicate database(southindia) to centralindia

southindia983 | Failover groups

SQL server

Search Add group Refresh Feedback

Overview Activity log Access control (IAM) Tags Quick start Diagnose and solve problems Resource visualizer Settings Data management Backups Deleted databases Failover groups Import/Export history

Failover group are a SQL server feature designed to manage replication, connectivity and failover of a set of da

Name	Primary server	Secondary server	Read/Write failover poli
You have no group created			

Failover group

i Failover policy has been set to the recommended value of Customer managed. [Learn more](#)

Failover group name *

centralindia01

Server * ⓘ

Select a server

[Create new](#)

Database within the group ⓘ

Not configured yet

2 databases eligible

[Configure database](#)

✓ **Above Click on create new and create Server**

New server

Server name *	centralindia90	
	.database.windows.net	
Server admin login *	sqladmin	
Password *	*****	
Confirm password *	*****	
Location *	(Asia Pacific) Central India	
<input checked="" type="checkbox"/> Allow Azure services to access server		

Select

Failover group name *

centralindia01

Server ★ ⓘ

(new) centralindia90

[Create new](#)

Database within the group ①

Not configured yet

2 databases eligible

Configure database

- ✓ Above click on **Configure database**

Databases ... X

for failover group

Select all Filter items...

Name	Role	Secondary server	Status
db01			Online
db-02			Online

Showing 1 - 2 of 2 results.

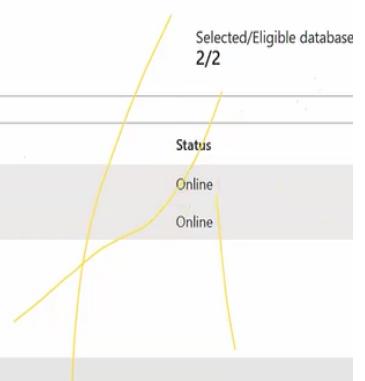
Create standby replica ⓘ

No Yes

Summary
Databases on secondary (excluding ones in Elastic Pools) 2
Elastic Pools on secondary server 0

Monthly cost USD 11.20

Select ↘



- ✓ After choosing databases when we click on select those 2 databases are selected for replication on secondary server.
- ✓ South India (Primary) & Central India (Secondary)

Failover group ...

Failover policy has been set to the recommended value of Customer managed. [Learn more](#) ↗

Failover group name * centralindia01

Server * ⓘ (new) centralindia90 Create new

Database within the group ⓘ
2 databases selected
2 databases eligible
[Configure database](#)

Create ↗

- ✓ 2 databases are selected and click on create, then databases will be replicate from south India to central India server.

- ❖ Azure SQL is a PaaS model, everything is managed by cloud vendor, we can create databases and replicate in different regions.
- ❖ Backend network replication configuration will be take care of Azure vendor, we just have to enable it, automatically in different site it will create servers and databases will deploy in those servers.
- ❖ Replication, backup etc we should do on database level only bcz database is critical and every log is very important in database, so we cannot use server for backup, we use database level only
- ❖ In IaaS model also we go to database level and choose transaction logs and other logs and we will keep Backup in another database and will monitor those logs.